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14. Is the LINEATOR suitable for generator applications?

In general, generators are reasonably well equipped to handle resistive or inductive loads but do not perform well under highly capacitive loading. This is primarily due to the inability of the generator's excitation controls to adjust to the voltage boost that the capacitors will introduce.

Figure 14-1 shows a typical Reactive Capability Curve for a generator. Reactive power in kVAR as a % of the generator's rated kVA is shown on the X-axis with lagging or inductive loads on the left side and leading or capacitive loads on the right side. Generator loading in KW as a % of rated kVA is shown on the Y-axis. The generator will operate properly with any loading that falls inside the outer curves.

As can be seen, the generator handles well any heavy inductive loads over its entire load range, accepting up to 85% inductive reactance at no load and 60% at full load. It performs less well however, when the loading is capacitive. At no load, capacitive reactive must be less than 20%.
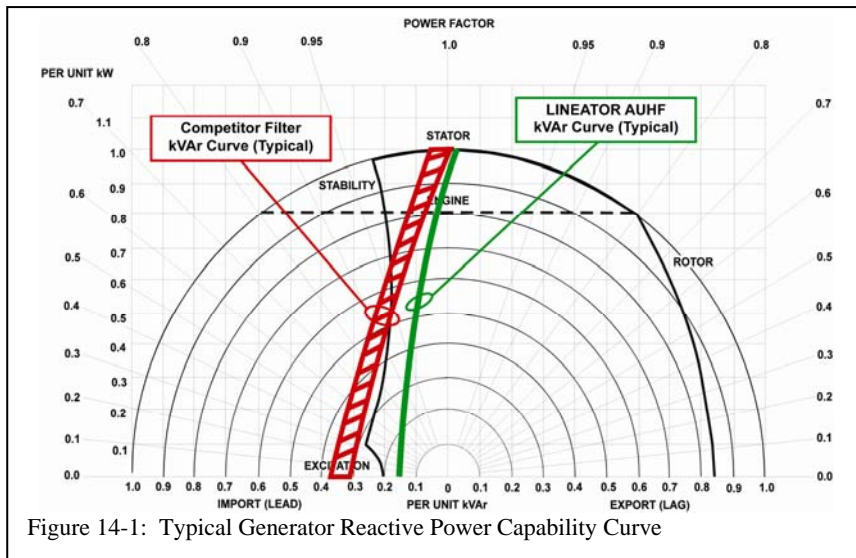

Figure 14-1: Typical Generator Reactive Power Capability Curve

Most competitive passive filters require large capacitor banks in order to achieve the harmonic reduction performance of the LINEATOR AUHF. As a result, they are very rarely suitable for generator applications. The unique configuration of the LINEATOR reactor, on the other hand, allows for a much smaller capacitor bank which ensures that it is compatible with the generator. The green trace in Figure 14-1 shows the maximum capacitive reactance of the LINEATOR AUHF. Even at no load, it is very comfortably lower than the maximum allowed (<15%). The red trace shows the typical capacitive reactance values of competitive filters which falls outside the acceptable limits. As a result, the LINEATOR can be guaranteed to operate without problems on any generator application whereas competitive filters cannot.